THE SOUTHWEST CENTER FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH

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Submitted by:

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ERC Summary:

The overall goal of the SWCOEH is to respond to the critical need for well-trained occupational and environmental health specialists by providing graduate level academic and research training and continuing education. The UTSPH has a unique, multi-campus system, with the main campus located in the Texas Medical Center in Houston and five regional campuses in Austin, Brownsville, Dallas, El Paso, and San Antonio. The ERC programs, faculty and students are located in Houston and San Antonio. All campuses are linked electronically, facilitating quality teaching and research, expanded course offerings, interdisciplinary collaboration and access to regional stakeholders as well as to expanded minority student populations. The ERC has been continuously funded since it was established in 1977 and incorporates faculty and students from various disciplines related to occupational and environmental health. The ERC currently provides master and doctoral level training in Industrial Hygiene, doctoral level training in Occupational Epidemiology and Injury Prevention, and postdoctoral residencies in Occupational Medicine. In addition, the ERC has an active Continuing Education that provides a full spectrum of training opportunities, enhanced by annual support of pilot projects research training for new and transitional investigators. This report highlights high impact activities locally, nationally, or globally that affect workplace safety and health in Region VI.

Relevance:

The UT ERC provides advanced degree training in occupational health and safety to meet the critical need for trained professionals in federal Region VI. A full spectrum of degree programs, advanced research training, and continuing education courses help meet the needs of Region VI for well-trained professionals to protect the health and safety of the nations' workforce.

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Industrial Hygiene Program Highlights
Grant Year 2011-2012 signified an impressive year for the Industrial Hygiene Program. We had a record number of 12 graduates; three graduated at the doctoral level and are now contributing to the NIOSH mission as leaders in their respective management positions. These high-level practice positions include: Executive Director of Environmental Health and Safety at the University of Texas MD Anderson Cancer Center, Radiation Safety Manager at the University of Texas Health Science Center in Houston, and Safety Administrator at the City of Houston. Each of these graduates is preparing a manuscript for publication describing their research, including the practical application of their respective studies.

Many of our Master's level graduates already maintain senior positions as Industrial Hygiene (IH) practitioners. The organizations in which these graduates work include Waste Management Incorporated, a major chemical company, and MD Anderson Cancer Center. One of these graduates, a professor of environmental sciences, completed this degree in order to include public health knowledge in his teaching portfolio.

Occupational and Environmental Medicine Program Highlights
The OEM Residency graduated three physicians in 2011 and admitted three new physician trainees, all having full prior primary care residency training.

Recent graduate, Thomas Hysler, MD, MPH, assumed the position of Center Medical Director at the Occupational Medical Care Pasadena Texas Center, a favored clinical practicum training site. ***Occupational Medical Care is a Texas business that has enjoyed rapid growth and market share acquisition in occupational health services on the Texas Gulf Coast serving 35,000 patients per year from over 435 companies***.

Recent graduate, Monica Saavedra, MD, was accepted into the first class of the Baylor College of Medicine Tropical Medicine Fellowship. She intends to meld the training and skills she receives there into her occupational medicine practice career.

Dr. Arch Carson, MD, PhD, Program Director, continues his research on illnesses experienced by Gulf War Veterans related to chemical exposure during their service. He also continues to ***provide important technical support to the Mossville, Louisiana community, a heavily polluted minority residential district***. George Delclos, MD, MPH, PhD, Associate Program Director continues his international research ***programs on asthma and on work absence***. These research projects require the cooperation of collaborators across the U.S. and from the European Union. Both of these research areas are receiving increasing recognition as critical problems in public health.

Occupational Epidemiology Program Highlights
In addition to placing Judy Wendt, PhD, one of our recent graduates, in a senior epidemiologist position at Shell Oil Company during the last year, the occupational epidemiology program faculty published noteworthy work, many with former occupational epidemiology trainees.

Hasanat Alamgir, Ph.D. worked with Drs. Somervell and Conway from NIOSH to explore data sources as a surveillance tool to identify occupational fatalities in farms in Texas. They made recommendations on improving occupational fatality surveillance, including the ***need to re-establish the Fatality Assessment and Control Evaluation*** program in Texas (manuscript under development). Dr. Ben Amick contributed to a systematic review of intervention practices for depression in the workplace where authors concluded that ***evidence of sufficient quality does not exist to recommend effective interventions to manage depression in the***

workplace (Furlan et al., 2012). Sharon Cooper, PhD collaborated with a former occupational epidemiology trainee, Dr. Shipp, on a study of acute occupational injury among adolescent farmworkers from South Texas funded by the NIOSH Agricultural Health Center in Tyler (U50 OH07541, S. Cooper, PI). This study has advanced the field of injury epidemiology by demonstrating that the rate of ***occupational injury was nearly three times the rate based solely on the standard definition*** that has been used, and provided evidence that non-work exposures, such as sleep and stress, also may contribute to occupational injury in this population (Shipp et al., in press). In addition, they recently confirmed the compelling need for a comprehensive intervention to prevent significant chronic disease in Hispanic high school students in South Texas, especially among males. Another translational aspect of this project was the development of a web-based program (which will be made available upon publication of the work) to screen for elevated blood pressure by considering the child's age in partial years, gender, and height percentile according to the Center for Disease Control and Prevention's growth charts. Drs. Lisa Pompeii and George Delclos surveyed obstetricians/gynecologists in Texas to identify current clinician recommendations for pregnant women engaging in physical activity at work and concluded that rigorous studies that examine the association of occupational activities and adverse pregnancy outcomes are needed ***to inform the current vague AMA and other professional guidelines that lead to inconsistent clinical advice.*** One of our former occupational epidemiology trainees, Kristina Whitworth, PhD, published her dissertation research with her advisor, Dr. Elaine Symanski in which they ***demonstrated the lack of agreement between predicted and modeled ambient air levels of benzene*** (Whitworth et al., 2011). Dr. Symanski also worked with a prior occupational epidemiology trainee (Philip Lupo, PhD) on the ***first study to assess the relationship between environmental levels of benzene and neural tube defects*** (Lupo et al., 2011).

Occupational Injury Prevention Program Highlights

Over the past year the Occupational Injury Prevention Research Training Program has been involved in multiple high impact projects for Region VI, the US and North America.

This Program has been active in the development of two evidence-based occupational health and safety training programs which will be relevant to Region VI and elsewhere. These include the ***Safe Patient Handling Program***, developed by Drs. Lisa Pompeii and David Douphrate with consultation from Robert Conrad (a Lean Six Sigma Black Belt) and ***the final product will be a downloadable training program from the US DOL OSHA website*****.** Also**, *an Office Ergonomics Training Project*** was led by Drs. Ben Amick and Michelle Robertson at the Liberty Mutual Institute for Safety Research. The training is compliant with ANSI and CSA standards and ***has been shown to be effective in changing worker behavior and reducing musculoskeletal symptoms***. ***The final product is being integrated into a learning management shareware program***.

Drs. Amick and Pompeii participated in a national forum in Washington, DC sponsored by the Department of Labor, NIOSH and NCCI, which resulted in a series of white papers. Dr. Pompeii is a co-author on a white paper addressing ***the use of workers' compensation data in the health care setting to evaluate the effectiveness of patient handling related injury prevention interventions***. Dr. Amick is lead author on a paper ***examining the role of leading indicators to manage occupational safety and health***.

Dr. Amick contributed to the literature on ***effective office ergonomic training and injury prevention and control in offices*** with Dr. Menendez at NIOSH and former occupational injury prevention research trainee (Amick et al., 2012; Chaumont Menendez et al., 2012). Dr. Pompeii engaged in a significant study on ***the risk of nail guns that included data collected in the***

greater Houston area (Lipscomb et al., 2011). In partnership with state dairy extension personnel, Dr. Douphrate conducted over ***35 safety audits on large-herd dairies in both New Mexico and Texas to facilitate injury prevention and control efforts to improve dairy worker health and safety*** (Patil et al., 2012; Douphrate et al., 2012).

Tim Read, a current OIP trainee, with Drs. Amick and Gimeno and OSHA's Division of Standards and Technology staff, conducted the first scientific ***examination of psychometric properties of the primary audit tool used in the national OSHA consultation program***. In addition, Mr. Read under the guidance of Drs. Douphrate and Amick participated in a series of targeted ergonomic assessment activities at Baker Hughes to develop tools for head injury identification and control and to assess the most appropriate tools for reducing musculoskeletal injuries associated with manual materials handling. This work recently expanded to include the reduction of back injuries and was presented as a poster at a national conference.

Cecilia Montano, a current OIP trainee, under the guidance of Dr. Amick, is ***working with a large petrochemical services company to integrate data on mental health and mental health treatment with data on occupational injury and illness to determine the business case for their Employee Assistance Program and the mental health managed care program***. This work will be used by the company's senior leadership to decide how to support mental health in the workplace.

Continuing Education Program Highlights

Two examples of high impact continuing education training events include the ***Environmental Health and Safety Academy for Academic Institutions (EHS Academy)*** and the Assessing Chemical Exposures Conference. EHS Academy is ***a 40-hour course with wide breadth that is designed specifically for university-based health and safety professionals***. Although we delivered a shorter version in New Mexico this year, we achieve the greatest impact when our target audience experiences the course in its entirety. During the last full session, participants rated their impressions of EHS Academy on a five-point Likert scale (five represented "highly satisfied"). On the course evaluation (delivered immediately upon conclusion of the course), in the categories *overall reaction* and the *potential for practical application*, our average ratings were 4.67 and 4.61, respectively. Three months later, when we surveyed these participants again, ***we obtained positive feedback through lessons learned in the course with participants specifically pointing to their success in effectively communicating through the media, in obtaining additional staff, and in interacting with upper management***.

We also sponsored ***The Assessing Chemical Exposures Conference***, which provided an opportunity to expand upon multiple partnerships with community groups and governmental agencies. ***In response to a request from the Texas Department of State Health Services (TxDSHS) to provide environmental medicine training for primary care physicians in the El Paso, Texas area, we developed and offered a five-hour conference delivered in El Paso in May 2012***. This conference attracted physicians on both sides of the US-Mexico border. Comments provided after the conference include the following: "Dr. Carson is truly a media-quality speaker…"; "Dr. Levin…is a true…teacher…" and "Dr. Byrd gave a wonderful talk and offered valuable insight…she's in her element…" We also received words of appreciation from TRLA, the non-profit group who originally identified this training need to the TxDSHS, and TxDSHS, who brought the need to our attention.

Pilot Project Research Training Program Highlights
During the 2011-2012 reporting period the Pilot Project Research Training Program funded nine research projects in Louisiana, Oklahoma and Texas from Federal Region VI.

A pilot project, "Development and Testing of an Occupational Health and Safety Program Self-Report Survey", awarded to UTSPH PhD Student Timothy Read, ***provided evidence on the relationship between effective safety and health management systems (SHMS) and reduced worker injury rates***. The research identified key SHMS dimensions and provided validation towards a self-reported measure, particularly in the Gulf Coast Region. Findings could have substantial implications as OSHA continues to move forward with a national Injury and Illness Prevention standard.

A pilot project, "Development of a portable EMG-based biofeedback system to alleviate chronic neck pain of computer workers, awarded to X. Neil Dong, PhD, ***provided evidence of an increased muscle activities in the upper trapezius muscles in symptomatic computer workers than in asymptomatic workers***. Their results help to establish a preset threshold level of muscle activity to differentiate symptomatic and asymptomatic workers. In addition, Dr. Dong also ***successfully developed a portable EMG-based biofeedback system to alleviate chronic neck pain of symptomatic computer workers***. Findings from this project have been presented at a state conference and a manuscript is in preparation.

Pilot Project awardee, Dr. Ephraim Massawe of Southeastern Louisiana University presented the preliminary results of his funded project at a national conference in June 2012. He plans to use the data to support a grant submission. Ms. Ran You, another Pilot Project awardee and graduate student in Immunology at Baylor College of Medicine (BCM), presented her work at a local meeting. In addition, ***data from this project was used to support a VA merit application, Carbon Black Induced Activation of Lung APCs***, submitted by Dr. David Corry, Professor of Immunology at BCM.

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[1]Bold denotes Program faculty; *Former SWCOEH trainee